



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,249	05/04/2006	Kazuo Sato	SATO3032	6688

23364 7590 07/26/2007  
BACON & THOMAS, PLLC  
625 SLATERS LANE  
FOURTH FLOOR  
ALEXANDRIA, VA 22314

EXAMINER
----------

AL HASHIMI, SARAH

ART UNIT	PAPER NUMBER
----------	--------------

2853

MAIL DATE	DELIVERY MODE
-----------	---------------

07/26/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/578,249	Applicant(s) SATO, KAZUO	
	Examiner Sarah Al-Hashimi	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 and 8-12 is/are allowed.
- 6) ☒ Claim(s) 1,3-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>05/04/2006</u> | 6) <input type="checkbox"/> Other: _____  |

*Lawson*  
 LAM SON NGUYEN

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 05/04/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Specification***

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1,3** are rejected under 35 U.S.C. 102(b) as being anticipated by Patton (US 6,951,375).

**Patton teaches:**

**Claim 1:** acquiring means that acquires, as information on the dot, at least two-dimensional position information of an exposed section of the workpiece (col 11 lines 43-56 "the laser is placed at position "D" and aligned to the starting position 102 at "X" on the large surface area 100. After the laser 620 is positioned, the apparatus 10 using the reflector 610 thereon, communications device 40 mounted on apparatus 10, laser beam 615 and scanning reflector 625 determines its location on the large area 100, maps the area 100 and line 205 or outline 230 by traveling over the area 100 in the raster scan pattern 900. Following the mapping as has been previously discussed, the logic and control unit 35 using the line 205 or outline 230, the laser 620 and the image raster map 905 controls the marking engine 23, the propulsion assembly 15, and the steering mechanisms 28 determines the appropriate raster pattern 915"), and density information of the dot; coordinate setting means that calculates, for each dot according to the density information, dot depth information showing the distance from the surface of the workpiece to the dot in the thickness direction of the workpiece, and sets three-

Art Unit: 2853

dimensional coordinates for each dot based on a position specified by the dot depth information and the two-dimensional position information acquired by said acquiring means; and laser marking means that performs marking with the three-dimensional coordinates as a laser beam focal point (col 10 lines 22-25 "this first measurement point "1" will have coordinates of  $x=x.sub.1$ ,  $y=y.sub.1$ , and  $z=z.sub.1$ , where the values of  $x.sub.1$ ,  $y.sub.1$ , and  $z.sub.1$  are distances defining location of measurement point"; the three dimensions reveal information about dot depth and col 11 lines 33-35 "the logic and control unit 35 using the line 205 or outline 230 and the image raster map 905 controls the marking engine").

**Claim 3:** characterized in that the laser marking is performed for at least one dot in the area (col 11 lines 43-56 "the laser is placed at position "D" and aligned to the starting position 102 at "X" on the large surface area 100...the laser 620 and the image raster map 905 controls the marking engine 23, the propulsion assembly 15, and the steering mechanisms 28 determines the appropriate raster pattern 915 to follow to print the new completed colorized image 910 shown in FIG. 14 without running over a previously printed area 920").

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2853

8. **Claims 4-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Patton (US 6,951,375) in view of Tait (US 2003/0219577).

**Patton** teaches:

**Claim 7:** characterized in that marking is carried out such that a plurality of dots different in the distance from the surface of said workpiece in the thickness direction are formed in said workpiece, and the difference in the depth among the plurality of dots causes the dots appear different in the density (col 10 lines 22-25 "this first measurement point "1" will have coordinates of  $x=x_{sub.1}$ ,  $y=y_{sub.1}$ , and  $z=z_{sub.1}$ , where the values of  $x_{sub.1}$ ,  $y_{sub.1}$ , and  $z_{sub.1}$  are distances defining location of measurement point"; the three dimensions reveal information about dot depth and the distances may vary from dot to dot giving the appearance of a varied density for different dots).

**Patton** does not teach but **Tait** teaches:

**Claim 4:** the workpiece is made of a light transmitting resin material, and comprises a core material, which is a colored material having light reflectivity, on the rear surface of the workpiece (para 20 "the microlayers are sufficiently thin so that light reflected at a plurality of the interfaces undergoes constructive or destructive interference in order to give the film body the desired reflective or transmissive properties" and para 25 "colored mirror films").

**Claim 5:** the workpiece is made of a light transmitting resin material, and comprises a core material, which is a colored material having light reflectivity, on the rear surface of the workpiece, and another workpiece is in contact with a surface opposite to the

Art Unit: 2853

contact surface between the core material and the workpiece (para 20 "the microlayers are sufficiently thin so that light reflected at a plurality of the interfaces undergoes constructive or destructive interference in order to give the film body the desired reflective or transmissive properties" and para 25 "colored mirror films"—the microlayers make up the different workpieces).

**Claim 6:** the core material is configured by building up two types of resin materials (para 51 "curable resins component (mixture of epoxy and polyol)").

**Claim 7:** a workpiece formed by a light transmitting resin material, and a core material which is a colored material having light reflectivity, and is built up on a rear surface of said workpiece (para 20 "the microlayers are sufficiently thin so that light reflected at a plurality of the interfaces undergoes constructive or destructive interference in order to give the film body the desired reflective or transmissive properties" and para 25 "colored mirror films").

**Therefore** it would have been obvious to a person having ordinary skill in the art to modify Patton to incorporate a workpiece formed by a light transmitting resin material, and a core material which is a colored material having light reflectivity, and is built up on a rear surface of said workpiece as taught by Tait because the material can absorb the laser energy in order to formulate the workpiece.

***Allowable Subject Matter***

9. Claims 2,8-12 are allowed.

10. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 2,10-12 is the inclusion of the limitation of an object to be marked that includes a marking information setting means that calculates, for each dot according to the density information, dot depth information showing the distance from the surface of the workpiece to the dot in the thickness direction of the workpiece, and dot diameter information showing the diameter of the dot, sets three-dimensional coordinates for each dot based on a position specified by the dot depth information and the two-dimensional position information acquired by said acquiring means, and sets the dot diameter information for each dot in the three-dimensional coordinates, thereby forming marking information for each dot. It is this limitation found in claim 2, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 8 is the inclusion of the limitation of an object to be marked that includes a workpiece characterized in that marking is carried out such that a plurality of dots different respectively in the distance from the surface of said workpiece in the thickness direction and the diameter are formed in said workpiece, and the differences in the depth and the diameter of each dot cause the each unit area in which the dots are formed appears different in the density. It is this limitation found in claim 8, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.



The primary reason for the allowance of claim 9 is the inclusion of the limitation of a laser marking method that includes a marking information setting step of setting the dot diameter information acquired by said dot information acquiring step for each dot in the three-dimensional coordinates set by said three-dimensional coordinate setting step, thereby forming marking information. It is this limitation found in claim 9, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(US 5,293,539) discloses a marking method that includes measurements of dot density.

(US 5,389,196) discloses a method for fabricating a three dimensional workpiece involving determining pixel depth.

(US 4,961,080) discloses a laser marking method involving a three dimensional object.

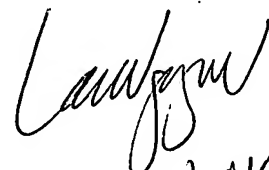
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Al-Hashimi whose telephone number is 571 272 7159. The examiner can normally be reached on M-F.

Art Unit: 2853

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272 2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SA/

  
LAM SON NGUYEN